Interim Periodic Review Report

Iroquois Gas/Westwood Pharmaceuticals Terrestrial Site
120 Dart Street and 40 Bradley Street
City of Buffalo, Erie County, New York
NYSDEC Site No. 915141A

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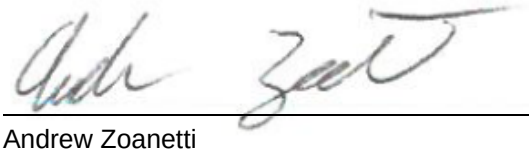

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Acronyms and Abbreviations

Arcadis	Arcadis of New York, Inc.
BSA	Buffalo Sewer Authority
BPDES	Buffalo Pollutant Discharge Elimination System
BTEX	benzene, toluene, ethylbenzene, and xylene
NAPL	non-aqueous phase liquid
NYSDEC	New York State Department of Environmental Conservation
OMM	operations, maintenance, and monitoring
OWS	oil-water separator
USEPA	United States Environmental Protection Agency

Executive Summary

Table ES-1 summarizes the engineering controls implemented for the Iroquois Gas/Westwood Pharmaceuticals Terrestrial Site, designated as Site No. 915141A by the New York State Department of Environmental Conservation (NYSDEC) pursuant to the New York State Inactive Hazardous Waste Registry Program (the Site). The Site is located at 120 Dart Street and 40 Bradley Street in the City of Buffalo, Erie County, New York. In addition to the engineering controls, Table ES-1 also summarizes the monitoring, inspection, maintenance, and reporting requirements for this Site.

Table ES-1. Period Review Report Summary

Element	Requirement
Engineering Controls	1. Soil cover system, including a combination of one foot topsoil cover and impermeable surfaces. 2. Groundwater and non-aqueous phase liquid collection and treatment system.
Monitoring	1. Groundwater Monitoring: a. Semi-annual fluid level measurements – monitoring wells B19, B6R, B7R, B8R, MWF1, MWF2, MWF3, MWF4, MWF5, MWS2, and MWS4 and piezometers P1, P2, P6R, P7R, P8R, PF3, PF4, PF6, PS1, PS2, TP1, and TP2. b. Semi-annual groundwater sampling – monitoring wells B6R, B7R, B8R, MWF2, MWF3, and MWF4 and piezometer P8R. 2. Seep Monitoring: Monthly seep monitoring – seep numbers 13, 14, 16, 30, and 32.
Inspections	Site-wide inspections will be performed on an annual basis, or within 5 days after an emergency, such as a natural disaster (e.g., flood, tornado, etc.) or an unforeseen failure of an engineering control, to verify the continued effectiveness of the institutional and engineering controls on the Site properties.
Maintenance	1. Transfer pumps: alternate quarterly, and clean as needed. 2. Flow meter: quarterly (calibrate) or annually (replace). 3. Control panels: as needed. 4. Level floats: as needed. 5. Piping, hoses, fittings, and unions: As needed. 6. Air compressor: weekly or as needed (drain condensate), monthly (activate relief valve), and annually (change out oil and lubricate motor bearings). 7. Air dryer: annually (clean). 8. Thermostats: as needed. 9. Skymetry alarm: as needed. 10. Oil-water separator: weekly (drain non-aqueous phase liquid) and annually (clean). 11. Equalization tank: annually (clean). 12. Carbon adsorbers: as needed. 13. Cartridge filter: as needed.
Reporting	A periodic review report is to be submitted to the NYSDEC on an annual basis, which is to first begin 16 months after the acceptance of the SMP. Note: The SMP has not been approved at this time, nor has the Environmental Easement been finalized with the NYSDEC and filed against the real property records. A draft of the SMP was submitted to NYSDEC for review on February 14, 2022. However, under agreement with the NYSDEC, an interim periodic review report will be submitted for review in advance of the final institutional controls being in place.

1 Introduction

1.1 General

This Interim Periodic Review Report has been prepared by Arcadis of New York, Inc. (Arcadis), on behalf of Bristol-Myers Squibb Company on behalf of Westwood-Squibb Pharmaceuticals Company, Inc. (Westwood Pharmaceuticals), to present the post-remediation monitoring, inspection, operation and maintenance, and reporting of the past 24 months (April 2021-March 2023) for the Iroquois Gas/Westwood Pharmaceuticals Terrestrial Site (the Site) located at 120 Dart Street and 40 Bradley Street in the City of Buffalo, Erie County, New York (**Figure 1**). The Site is currently listed under the New York State Inactive Hazardous Waste Registry Program (Site Number 915141A), which is administered by the New York State Department of Environmental Conservation (NYSDEC). Westwood Pharmaceuticals no longer holds fee title to the Site, but maintains a legal right of access to the Site to maintain and operate the implemented Site remedy.

The Site was remediated by Westwood Pharmaceuticals between 1996 and 1997. Remediation activities included installation of a groundwater pump and treat system with extraction wells and low permeability soil cover. The existing groundwater interceptor trench was installed in 2017 to enhance the groundwater and non-aqueous phase liquid (NAPL) recovery at the Site. This interceptor trench replaced the previously installed extraction wells. Institutional and engineering controls have been incorporated into the Site remedy to control exposure to the remaining soil and groundwater impacts and protect public health and the environment. All work was completed consistent with the NYSDEC's selected remedy, as identified in the *Record of Decision* (ROD; NYSDEC 1994) and amended by the subsequently issued *Explanation of Significant Difference* (ESD; NYSDEC 2014).

1.2 Site Background

The Site is comprised of two main properties, which are identified as Block 1, Lot 5.1 and Block 1, Lot 5.2 on Section 88.50 of the City of Buffalo Tax Map. A small half-moon shaped parcel is included within the definition of the Site, which comprises a small area not currently listed under an SBL through Erie County and is adjacent to the Scajaquada Creek; this area is assumed to have been formed by accretion. The Site properties encompass approximately 9.25 acres and are generally bounded by a City of Buffalo impound lot to the north; Bradley Street and a mix of vacant industrial and residential properties to the south; Dart Street and a mix of industrial and residential properties to the east; and vacant land, Scajaquada Creek, and industrial properties to the west. The Site is zoned for industrial use and contains two 100,000-square-foot warehouses (Building 6 and Building 9) and a groundwater treatment building (Building 6A). Building 6 and Building 9 are owned by 2225 East 7 Properties, LLC and JEMF Buffalo Industrial LLC and are currently leased to a trucking firm for warehousing operations. The remainder of the Site is covered with a mixture of grass, asphalt pavement, and gravel/crushed stone. The Site is enclosed by fencing and is generally secure from public access.

Surface topography at the Site is relatively flat, but slopes steeply toward Scajaquada Creek along the western boundary of the Site. Most surface water run-off is directed toward on-site drainage ditches and storm sewers, although some surface water flows directly to Scajaquada Creek during precipitation events. Scajaquada Creek discharges into Black Rock Canal and eventually into the Niagara River.

2 Operations, Maintenance, and Monitoring

2.1 System Description

The extraction system recovers impacted groundwater and non-aqueous phase liquid (NAPL) from a 310-foot-long interceptor trench located in the northwest area of the Site, proximal to the Scajaquada Creek (**Figure 1**). The interceptor trench was installed in 2017 to replace a series of groundwater extraction wells. A 4-inch-diameter, 265-foot-long, slotted pipe was installed at the base of the interceptor trench and terminates at a recovery sump. A pneumatic pump extracts groundwater and NAPL from the recovery sump and transfers it through a 2-inch liquid conveyance pipe to the groundwater treatment plant (Building 6A). Compressed air is supplied to the pump via a 1-inch pipe. A second, standby pneumatic pump was installed in the sump. A Construction Completion Report for the groundwater interceptor trench was submitted to the NYSDEC in December 2017 and approved by the NYSDEC on September 30, 2019.

Inside the groundwater treatment plant, the total fluids recovered from the interceptor trench sump flow through an oil-water separator (OWS) capable of separating both light NAPL and dense NAPL from the total fluid stream. The outflow of water is then pumped through an equalization tank, through a particle filtration system, and then through a granular activated carbon treatment. The treated water is discharged to the Buffalo Sewer Authority (BSA) under Buffalo Pollutant Discharge Elimination System (BPDES) discharge permit number 21-07-BU174. A process flow diagram is included as **Figure 2**.

2.2 System Operation and Facility Maintenance

Operations, maintenance, and monitoring (OMM) activities are performed by the operator and documented on the operator log sheets. Weekly visual inspections of the treatment building and equipment, the cartridge filter, the air dryer, and the equalization tank level switches are conducted. Management of inventory supplies and spare parts is also completed on a weekly basis. Other OMM items to note are:

- The cartridge filter is checked and changed out as needed.
- The condensate liquid is removed as needed.
- NAPL from the OWS is drained and put in a drum on a weekly basis.

The cap area and the area adjacent to the creek are mowed, as needed, during the growing season. Snow removal is completed to access the treatment building. The flow meter is replaced on an annual basis to keep it properly calibrated. On a quarterly basis, the transfer pump is switched over to the other transfer pump that was not used for the previous quarter. Weed maintenance along the road and fence is completed in the spring and fall.

The system had been in operation since 1997 in its original configuration and was reconfigured in June 2017 after the completion of the groundwater interceptor trench, with limited downtime for maintenance since that time. In late November and early December 2019, the total fluids recovery pump became clogged with certain viscous NAPL, and NAPL recovery was temporarily reduced while the pump was pulled and replaced. The total fluids recovery pump was re-installed in mid-March 2020 and lowered incrementally into the NAPL to prevent clogging and resume product recovery. Given the nature of the complete remedy, this limited and temporary decrease in efficiency did not have any impact on compliance.

3 Discharge Monitoring and Permit Compliance

To comply with the BSA BPDES Permit, Arcadis submits quarterly Discharge Monitoring Reports to the BSA. Monthly discharge grab samples are collected and analyzed for pH, total mercury, total zinc, total cyanide, volatile organic compounds, and semi-volatile organic compounds via standard United States Environmental Protection Agency (USEPA) methods. In the past 24 months, approximately 836,400 gallons of groundwater have been treated and discharged, and analytical results have indicated the treatment system operates within the permit requirements and within regulatory compliance. A pH result of 12.5 SU from a discharge sample collected on October 3, 2022 was initially reported by the laboratory. However, the laboratory was able to determine that this data was incorrect and the result of laboratory compromise of the sample. A copy of the investigation report from the laboratory is included in the Fourth Quarter 2022 Discharge Monitoring Report. Other than this one erroneous report, all other sampling met BSA BPDES Permit limitations. The Discharge Monitoring Reports are included in **Appendix A**.

4 Non-Aqueous Phase Liquid Recovery

NAPL recovered from the OWS is temporarily stored on site in 55-gallon drums. Currently there is approximately 125 gallons of NAPL staged on site pending disposal.

As previously indicated to the NYSDEC in the prior PRR, to improve efficiency of NAPL recovery, additional O&M procedures are being implemented to recover NAPL that is currently located below the trench recovery sump pump. During routine system inspections, if needed, a recovery pump designed for high viscous liquids will be lowered into the sump to recover accumulated NAPL. Any recovered NAPL will be temporarily stored on site in the 55-gallon drums currently used to store NAPL collected from the OWS for offsite disposal.

5 Annual Groundwater Monitoring and Reporting

Groundwater monitoring, consisting of fluid level measurements (gauging) and groundwater sampling, is conducted to:

- Confirm groundwater elevation and flow direction, and to confirm the effectiveness of the groundwater/NAPL collection system.
- Assess seasonal changes in groundwater elevation.
- Monitor for the presence of NAPL.
- Evaluate dissolved-phase concentration trends, to assess dissolved-phase stability.

5.1 Groundwater Elevation Measurements

Fluid level measurements (gauging) are collected on a semi-annual basis at: (1) monitoring wells B6R, B7R, B8R, B19, MWF1 through MWF5, MWS2, and MWS4; (2) piezometers P1, P2, P6R, P7R, P8R, PF3, PF4, PF6, PS1, PS2, TP1, and TP2; and (3) the trench pumping sump. The well locations are shown on **Figure 1**. Each gauging event includes the following:

- Measurement of the groundwater/surface water level and, where present, NAPL thickness at each well or piezometer; and
- Manual removal, to the extent practicable, of NAPL accumulations greater than 0.1 foot in thickness.

At each well/piezometer, an oil-water interface probe is used to determine the presence or absence of NAPL and measure the depth to groundwater, depth to NAPL (where present), and total depth of the well/piezometer. Depths are measured to the nearest 0.01 foot from the reference point at the top of the inner casing. To the extent practicable, groundwater levels are measured within a single workday to minimize potential relative changes in measurements due to seasonal conditions or precipitation events.

Groundwater elevations within the past 24 months consistently show a general westward flow towards the Scajaquada Creek and gradients toward the interceptor trench and recovery sump. Groundwater gauging data and contour maps are included in **Appendix C**.

5.2 Groundwater Sampling

Groundwater sampling is conducted on a semi-annual basis at monitoring wells B6R, B7R, B8R, MWF2, MWF3, and MWF4 and at piezometer P8R. The well locations are shown on **Figure 1**. Each sampling event includes the following:

- Measurement of the groundwater level and, where present, NAPL thickness at each well or piezometer (as discussed in Section 5.1);
- Collection and analysis of groundwater samples from those wells/piezometers where NAPL is not observed; and
- Manual removal, to the extent practicable, of NAPL accumulations greater than 0.1 foot in thickness.

Following fluid level measurements, groundwater samples are collected via low-flow sampling methods and then packaged on ice and shipped to Eurofins Test America Laboratory for the analysis of benzene, toluene, ethylbenzene, and xylene (BTEX) via USEPA Method 8260C.

During the September 2021, November 2021, November 2022, and December 2022 sampling events, total BTEX concentrations between the wells and piezometer ranged from below laboratory method detection limits to above the NYSDEC ambient water quality standards and guidance values presented in Technical and Operation Guidance Series 1.1.1, which is consistent with historical results.

Tabulated groundwater analytical data and groundwater concentration figures for the associated period are included in **Appendix C**. More details regarding the sampling events can be found in the 2021 and 2022 Annual Reports (which is being submitted contemporaneous with this report).

6 Cap, Creek, and Sheet Pile Wall Inspections

The Site cap, consisting of previously existing Site development, impervious surfaces, and an engineered soil cover system, is inspected weekly for any breaches, penetrations, or other disturbances.

Monitoring of the sheet pile wall and Scajaquada Creek are conducted monthly to verify that the groundwater/NAPL collection system is providing sufficient hydraulic containment to prevent the off-site migration

of groundwater and NAPL. Each monitoring event includes a visual assessment and photo-documentation of the exposed portion of the sheet pile wall.

No seepage through the wall or sheen on the surface water has been observed within the past 24 months. No other issues impacting the effectiveness of the engineering controls were identified. The monthly inspection reports are included in **Appendix D**.

7 Waste Handling and Disposal

In November 2022, waste was transported by Abscope Environmental to the High Acres Landfill facility in Fairport, NY, for disposal as non-hazardous waste. The materials sent for disposal included 1.5 tons of personal protective equipment, cartridge filters, and granular activated carbon. The waste manifest is included in **Appendix E**.

8 Conclusion

The current remedy and institutional controls have been effective for the past 24 months and are being implemented consistent with the requirements of the ROD and ESD. The groundwater recovery trench has been effectively controlling groundwater, dissolved constituents, and NAPL. The groundwater treatment system has operated within permit requirements with no exceedances over the past 24 months. Work continues with the property owner to effectuate the filing of an environmental easement on the real property to finalize implementation of the remedy. A final SMP, to be approved by the NYSDEC, will be incorporated by reference into the environmental easement to assure continuation of the institutional and engineering controls, as well as the associated OMM activities described herein.